



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

08) 905254

APPLICATION NO. 08/905254	FILING DATE 08/01/97	FIRST NAMED INVENTOR DURKOT R	ATTORNEY DOCKET NO. 08935018001
------------------------------	-------------------------	----------------------------------	------------------------------------

ROBERT C NABINGER  
FISH AND RICHARDSON  
225 FRANKLIN STREET  
BOSTON MA 02110

IM52/0505

EXAMINER WILLS, M
----------------------

ART UNIT 1745	PAPER NUMBER
------------------	--------------

DATE MAILED: 05/05/99 9

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

08/905,254

Applicant(s)

Durkot et al.

Examiner

Monique Wills

Group Art Unit

1745

☒ Responsive to communication(s) filed on Mar 12, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-28 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-28 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 6&8

☒ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 1745

## DETAILED ACTION

### *Response to Amendment*

This Office Action is in response to an amendment filed March 12, 1999. The 35 U.S.C. 112 rejections applied to claims 10 and 28 are withdrawn. Claims 1-28 are rejected as being unpatentable over Yoshizawa et al. Patent 5,168,018 in view of Japanese Patent Laid-Open No. 57-182972.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshizawa et al. Patent 5,168,018 in view of Japanese Patent Laid-Open No. 57-182972.

Claims 1-28 are drawn to a gelled zinc anode. The anode comprises: zinc alloy particles, a surfactant, an electrolyte, indium and/or barium, and a thickening agent. Ten to eighty percent of the zinc alloy particles are -325 mesh size or smaller. Additionally, the Applicant claims an electrochemical cell comprising the gelled zinc anode, a cathode and a separator.

Art Unit: 1745

Yoshizawa et al. discloses a gel-like zinc anode. The gel like anode comprises potassium hydroxide, sodium polyacrylate, carboxymethyl cellulose (col 6 lines 61-65), indium hydroxide or indium sulfide (col 6 lines 65-68), zinc alloy powder (col 7 lines 1-2), and a surfactant (col 5 lines 30-35). The anode gel is charged into an electrochemical cell comprising a cathode and separator (col 7 lines 9-15).

Yoshizawa et al. does not disclose the shape or mesh size of the zinc alloy particles.

However, Japanese Patent Laid-Open No. 57-182972 teaches fabricating a gelled zinc anodes using a mixture of zinc particles having a grain size of 70-500 microns and *25 microns or less* (page 7 lines 18-21). The fine particles of 25 microns or less are added to the electrode to uniformly disperse the zinc powder in the gelled electrolyte to increase the surface area thereof to improve the coefficient of use of the zinc powders and to improve the discharge characteristics of the cell (page 7 lines 21-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the zinc particles of the **Japanese Patent '972** in the gelled anode of Yoshizawa, because the fine particles increase the surface area and discharge characteristics of the electrode. Moreover, the skilled artisan recognizes that the employment of fine zinc particles increases homogeneity of the anode powder through out the gel, enabling the anode to be uniformly disposed against the cathode for optimum cell performance.

The Examiner acknowledges that the Japanese Patent '972 does not expressly disclose zinc particles of -200 mesh or smaller however, 25 microns or less include zinc particles of small

Art Unit: 1745

sizes including -200 mesh or smaller. Moreover, the 25 microns or less disclosure does not exclude zinc particles of -200 mesh or smaller.

As to the shape of the zinc particles, unless unexpected ameliorative results can be demonstrated from using the particle shaped claimed, the claims are obvious, as the skilled artisan would be able to obtain desired results from particles of the same size.

As to the method of generating an electric current limitation, a battery comprising the constituents described above will inherently generate electric current. Therefore, the claim is obvious, and the limitation is met.

Art Unit: 1745

*Conclusion*

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 5,626,988 discloses sealed rechargeable cells containing mercury-free zinc anodes, and a method of manufacturing.

Any inquiry concerning this communication should be directed to Monique Wills at telephone number (703) 305-0073 .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique Wills whose telephone number is (703) 305-0073. The examiner can normally be reached on Monday - Friday from 8:30am to 5:00pm.

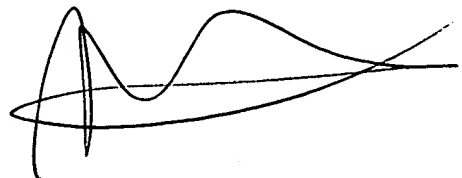
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Maria Nuzzolillo, can be reached on (703) 305-3776.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

MW

4/30/99

Maria Nuzzolillo  
Supervisory Patent Examiner  
Technology Center 1700

A handwritten signature in black ink, appearing to be 'Maria Nuzzolillo', written over a horizontal line.